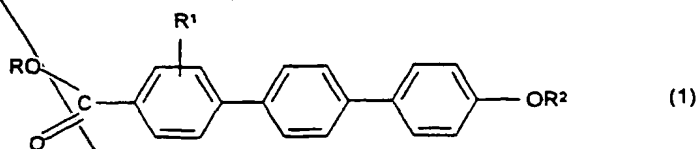
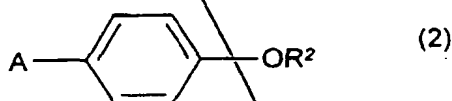


Claims

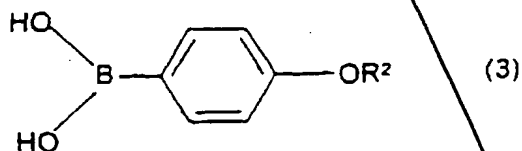
1. A method for producing [1,1':4',1'']-terphenyl compounds of the formula



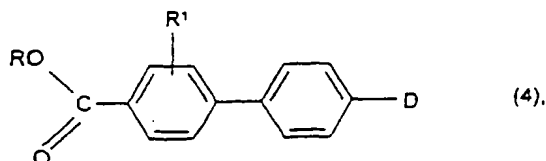
in which R is hydrogen or a straight-chain or branched C₁-C₄-alkyl radical, R¹ is hydrogen, a straight-chain or branched C₁-C₄-alkyl radical or a straight-chain or branched C₁-C₄-alkoxy radical and R² is hydrogen, a straight-chain C₁-C₁₂-alkyl radical, an unsubstituted phenyl radical, a phenyl radical which is substituted by one or two C₁-C₄-alkyl groups or C₁-C₄-alkoxy groups, or a radical $-(CH_2)_xOR^3$ in which x is an integer from 1 to 4 and R³ is a straight-chain or branched C₁-C₄-alkyl radical, which comprises reacting a metal aryl of the formula



in which A is a monovalent metal or MeX, where Me is a divalent metal and X is Cl, Br or I, and R² is A or a trisubstituted silyl radical, or has the meaning indicated in formula (1), excepting hydrogen, with a boric ester at -80 to 40°C in the presence of an inert solvent, converting the reaction product by hydrolysis into a boronic acid of the formula



reacting the boronic acid, a boronic anhydride obtainable from boronic acid by elimination of water, or a mixture of boronic acid and boronic anhydride, with an alcohol, and reacting the boronic ester formed thereby with a biphenyl compound of the formula



in which R and R¹ have the meaning indicated in formula (1), and D is Cl, Br, I, O₃S-C_nF_{2n+1}, where n is an integer from 1 to 4, or N₂⁺Y⁻ where Y⁻ is

ClO_4^- , BF_4^- or HSO_4^- , at 40 to 180°C in the presence of a catalyst, of an acid-binding agent and of a polar solvent.

2. The method as claimed in claim 1, wherein a metal aryl of the formula (2) in which A is Li, Na, K, MgX or ZnX and X is Cl, Br or I is employed.

3. The method as claimed in claim 1 or 2, wherein a metal aryl of the formula (2) in which A is MgCl, MgBr or MgI is employed.

4. The method as claimed in one or more of claims 1 to 3, wherein a boric ester $\text{B}(\text{OR}')_3$ in which R' is identical to or different from one another and is a straight-chain or branched C_1 - C_8 -alkyl radical, or a phenyl radical which is unsubstituted or substituted by one or two C_1 - C_4 -alkyl groups or C_1 - C_4 -alkoxy groups is employed.

5. The method as claimed in one or more of claims 1 to 4, wherein a dialkyl ether having 1 to 4 carbon atoms in each alkyl radical, a cycloaliphatic ether having 4 or 5 carbon atoms in the ring, a formaldehyde dialkyl acetal, a 1,2-dialkyl glycol ether having 1 to 4 carbon atoms in each alkyl radical, a mixture thereof or a mixture thereof with toluene is employed as inert solvent.

6. The method as claimed in one or more of claims 1 to 5, wherein a C_1 - C_8 -alkyl alcohol, a C_2 - C_6 -alkane-1,2-diol, a C_3 - C_6 -alkane-1,3-diol, a C_4 - C_6 -alkane-1,4-diol or 1,2-dihydroxybenzene is employed as alcohol.

7. The method as claimed in one or more of claims 1 to 5, wherein the boronic acid, the boronic anhydride or the mixture of boronic acid and boronic anhydride is reacted in place of the boronic ester with the biphenyl compound of the formula (4).

8. The method as claimed in one or more of claims 1 to 7, wherein a biphenyl compound of the formula (4) in which D is Cl, Br, I or N_2^+Y^- is employed.

9. The method as claimed in one or more of claims 1 to 7, wherein palladium, a palladium compound or a nickel compound is employed as catalyst.

put B1

10. The method as claimed in one or more of claims 1 to 9, wherein an alcohol, a sulfoxide, a sulfone, an amide and, where appropriate, water or a mixture thereof is employed as polar solvent.

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11. The compounds 4-n-pentoxyphenylboronic acid, trimeric 4-n-pentoxyphenylboronic anhydride, glycol ester of 4-n-pentoxyphenylboronic acid or neopentyl glycol ester of 4-n-pentoxyphenylboronic acid.

add B2